



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2011-1251; Directorate Identifier 2011-NM-017-AD; Amendment 39-17132; AD 2012-15-03]**

**RIN 2120-AA64**

**Airworthiness Directives; Embraer S.A. Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), Department of Transportation (DOT).

**ACTION:** Final rule.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for all Embraer S.A. Model ERJ 190 airplanes. This AD was prompted by a report of damage on the rod end of the retracting actuator rod of the main landing gear (MLG). This AD requires performing a one-time general visual inspection to determine if a certain part number is installed on the MLG retraction actuator; if necessary, performing a general visual inspection for discrepancies between the actuator rod end and shock strut lug of the MLG retraction actuator; and corrective actions if necessary. We are issuing this AD to detect and correct breakage of the MLG retracting actuator rod, which may result in MLG extension with no hydraulic damping and consequent damage to the locking mechanism and collapse of the MLG.

**DATES:** This AD becomes effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may examine the AD docket on the Internet at <http://www.regulations.gov> or in person at the U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC.

**FOR FURTHER INFORMATION CONTACT:** Cindy Ashforth, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue SW., Renton, Washington 98057-3356; telephone (425) 227-2768; fax (425) 227-1149.

**SUPPLEMENTARY INFORMATION:**

**Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that would apply to the specified products. That NPRM was published in the Federal Register on November 28, 2011 (76 FR 72855). That NPRM proposed to correct an unsafe condition for the specified products. The MCAI states:

It has been found the occurrence of damage on the rod end of the Main Landing Gear (MLG) retraction actuator. The ANAC [Agência Nacional de Aviação Civil] is issuing this AD to prevent breakage of the MLG retracting actuator rod, which may result in MLG extension with no hydraulic damping and consequent damage to the locking mechanism and collapse of the MLG.

\* \* \* \* \*

Required actions include a one-time general visual inspection to determine if a certain part number is installed on the left-hand and right-hand MLG retraction actuator, and if necessary, a general visual inspection for discrepancies (such as cracks, damage, and movement) between the actuator rod end and shock strut lug of the MLG retraction actuator. The corrective actions include: If any discrepancy is found during any

inspection, including any movement between the actuator rod-end and shock strut lug, replace the MLG retraction actuator, and as applicable, replace the anti-rotation pin and the attachment bolt with a new pin and bolt; replace the actuator with a new actuator having a certain part number, and modify the attachment points. You may obtain further information by examining the MCAI in the AD docket.

### **Comments**

We gave the public the opportunity to participate in developing this AD. We considered the comments received.

### **Request to Use Additional Service Bulletins**

EMBRAER requested that we revise the NPRM (76 FR 72855, November 28, 2011) to include EMBRAER Service Bulletin 190LIN-32-0014, dated February 10, 2011 (for Model 190-100 ECJ airplanes); and EMBRAER Service Bulletin 190LIN-32-0015, dated February 10, 2011 (for Model 190-100 ECJ airplanes); as additional service information for the inspection and replacement of the MLG retraction actuator, bolt, and anti-rotation pin.

We agree with EMBRAER's request to add additional service information to this AD. EMBRAER Service Bulletin 190LIN-32-0014, dated February 10, 2011 (for Model 190-100 ECJ airplanes), provides procedures for doing the inspection; and EMBRAER Service Bulletin 190LIN-32-0015, dated February 10, 2011 (for Model 190-100 ECJ airplanes), provides procedures for the replacement. The procedures to do the inspection and replacement are essentially the same as those specified in EMBRAER Service Bulletin 190-32-0036, dated October 4, 2010 (for Model ERJ 190 airplanes); and EMBRAER Service Bulletin 190-32-0037, dated October 6, 2010 (for Model ERJ 190 airplanes). We have revised this AD accordingly.

### **Request to Allow Flight after Damage is Found**

EMBRAER requested that we revise the NPRM (76 FR 72855, November 28, 2011) to allow further flight within 500 flight cycles after any damage is found on the airplane. EMBRAER stated that EMBRAER Service Bulletin 190LIN-32-0014, dated February 10, 2011 (for Model 190-100 ECJ airplanes); EMBRAER Service Bulletin 190LIN-32-0015, dated February 10, 2011 (for Model 190-100 ECJ airplanes); and Brazilian Airworthiness Directive 2011-02-01, dated February 12, 2011; allows replacement of the MLG retraction actuator, the attachment bolt, and the anti-rotation pin within the next 500 flight cycles if any discrepancy is found. EMBRAER stated that the NPRM requires that any discrepancy found be replaced before further flight.

We disagree with EMBRAER's request to allow further flight within 500 flight cycles after any damage is found on the airplane. Our policy requires repair of known cracks or damage before further flight (though we might make exceptions to this policy in certain cases of unusual need). This policy is based on the fact that such damaged airplanes do not conform to the FAA-certificated type design and, therefore, are not airworthy until a properly approved repair is made.

We consider the compliance times in this AD adequate, allowing operators to acquire parts to have on hand in the event that any crack or damage is detected during inspection. Therefore, we have determined that, due to the safety implications and consequences associated with such cracking and damage, any subject MLG retraction actuator that is found to be cracked or damaged must be repaired or modified before further flight. We have not changed the final rule regarding this issue.

**Change in Product Identification**

We have revised the applicability of the existing NPRM (76 FR 72855, November 28, 2011) to identify model designations as published in the most recent type certificate data sheet for the affected models.

**Explanation of Redesignated Note:**

We have redesignated Note 1 of the existing NPRM (76 FR 72855, November 28, 2011) as paragraph (g)(3) of this AD, respectively.

**Conclusion**

We reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously—except for minor editorial changes. We have determined that these changes:

- Are consistent with the intent that was proposed in the NPRM (76 FR 72855, November 28, 2011) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (76 FR 72855, November 28, 2011).

**Costs of Compliance**

We estimate that this AD will affect 73 products of U.S. registry. We also estimate that it will take about 1 work-hour per product to comply with the basic requirements of this AD. The average labor rate is \$85 per work-hour. Based on these figures, we estimate the cost of this AD to the U.S. operators to be \$6,205, or \$85 per product.

In addition, we estimate that any necessary follow-on actions would take about 6 work-hours and require parts costing \$0, for a cost of \$510 per product. We have no way of determining the number of products that may need these actions.

### **Authority for This Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. "Subtitle VII: Aviation Programs," describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in "Subtitle VII, Part A, Subpart III, Section 44701: General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### **Regulatory Findings**

We determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

1. Is not a "significant regulatory action" under Executive Order 12866;
2. Is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979);

3. Will not affect intrastate aviation in Alaska; and
4. Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a regulatory evaluation of the estimated costs to comply with this AD and placed it in the AD docket.

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Operations office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains the NPRM (76 FR 72855, November 28, 2011), the regulatory evaluation, any comments received, and other information. The street address for the Docket Operations office (telephone (800) 647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

### **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

### **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new AD:

**2012-15-03 Embraer S.A.:** Amendment 39-17132. Docket No. FAA-2011-1251;  
Directorate Identifier 2011-NM-017-AD.

**(a) Effective Date**

This airworthiness directive (AD) becomes effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to Embraer S.A. Model ERJ 190-100 STD, -100 LR, -100 ECJ, and -100 IGW airplanes; and Model ERJ 190-200 STD, -200 LR, and -200 IGW airplanes; certificated in any category; all serial numbers.

**(d) Subject**

Air Transport Association (ATA) of America Code 32: Landing Gear.

**(e) Reason**

This AD was prompted by a report of damage on the rod end of the retracting actuator rod of the main landing gear (MLG). We are issuing this AD to detect and correct breakage of the MLG retracting actuator rod, which may result in MLG extension with no hydraulic damping and consequent damage to the locking mechanism and collapse of the MLG.

**(f) Compliance**

You are responsible for having the actions required by this AD performed within the compliance times specified, unless the actions have already been done.

**(g) One-time General Visual Inspection**

Within 30 days after the effective date of this AD, do a one-time general visual inspection to determine if part number (P/N) 190-70980-403 is installed on the left-hand and right-hand MLG retraction actuator. A review of airplane maintenance records is acceptable in lieu of this inspection if the part number of the MLG retraction actuator can be conclusively determined from that review.

(1) No further action is required by paragraph (g) of this AD if no MLG retraction actuator having P/N 190-70980-403 is found.

(2) If any MLG retraction actuator having P/N 190-70980-403 is found, do a GVI of the actuator and bolt (P/N 2821-0028) for discrepancies (such as cracks, damage, and movement between the actuator rod end and shock strut lug of the MLG retraction actuator), in accordance with “Part I” of the Accomplishment Instructions of EMBRAER Service Bulletin 190-32-0036, dated October 4, 2010 (for all Model ERJ 190 airplanes); or EMBRAER Service Bulletin 190LIN-32-0014, dated February 10, 2011 (for Model 190-100 ECJ airplanes); within the applicable compliance time specified in paragraphs (g)(2)(i) and (g)(2)(ii) of this AD. Repeat the inspection, thereafter, at intervals not to exceed 3,500 flight cycles, until the actions required by paragraph (j) of this AD are done.

(i) For any MLG retraction actuator that has accumulated fewer than 3,500 total flight cycles as the effective date of this AD, do the GVI of the actuator before the accumulation of 4,500 total flight cycles on the MLG retraction actuator.

(ii) For any MLG retraction actuator that has accumulated 3,500 total flight cycles or more as of the effective date of this AD, do the GVI of the actuator within 1,000 flight

cycles after the effective date of this AD.

(3) For the purpose of this AD, a general visual inspection (GVI) is: "A visual examination of an interior or exterior area, installation or assembly to detect obvious damage, failure or irregularity. This level of inspection is made from within touching distance, unless otherwise specified. A mirror may be necessary to enhance visual access to all exposed surfaces in the inspection area. This level of inspection is made under normally available lighting conditions such as daylight, hangar lighting, flashlight or droplight, and may require removal or opening of access panels or doors. Stands, ladders or platforms may be required to gain proximity to the area being checked."

**(h) Corrective Actions**

If any discrepancy is found during any inspection required by paragraph (g)(2) of this AD, including any movement between the actuator rod-end and shock strut lug: Before further flight, replace the MLG retraction actuator, and as applicable the anti-rotation pin and the attachment bolt, in accordance with "Part II" and "Part III," as applicable, of the Accomplishment Instructions of EMBRAER Service Bulletin 190-32-0036, dated October 4, 2010 (for all Model ERJ 190 airplanes), or EMBRAER Service Bulletin 190LIN-32-0014, dated February 10, 2011 (for Model 190-100 ECJ airplanes); except where EMBRAER Service Bulletin 190-32-0036, dated October 4, 2010 (for all Model ERJ 190 airplanes), or EMBRAER Service Bulletin 190LIN-32-0014, dated February 10, 2011 (for Model 190-100 ECJ airplanes), specifies to contact the manufacturer, before further flight repair, in accordance with a method approved by the Manager, International Branch, ANM-116, Transport Airplane

Directorate, FAA, or Agência Nacional de Aviação Civil (or its delegated agent).

**(i) Replacement for MLG Retraction Actuator Having P/N 190-70980-403**

Before any MLG retraction actuator having P/N 190-70980-403 accumulates 12,000 total flight cycles or within 1,000 flight cycles after the effective date of this AD, whichever occurs later, replace the actuator with new a actuator having P/N 190-70980-405, and modify the attachment points, in accordance with “Part I” and “Part II,” as applicable, of the Accomplishment Instructions of EMBRAER Service Bulletin 190-32-0037, dated October 6, 2010 (for all Model ERJ 190 airplanes); or EMBRAER Service Bulletin 190LIN-32-0015, dated February 10, 2011 (for Model 190-100 ECJ airplanes).

**(j) Replacement for All Actuators**

For all actuators: Within 20,000 flight cycles or within 96 months after the effective date of this AD, whichever occurs first, do the replacement and modification, as applicable, in accordance with “Part III” of the Accomplishment Instructions of EMBRAER Service Bulletin 190-32-0037, dated October 6, 2010 (for all Model ERJ 190 airplanes); or EMBRAER Service Bulletin 190LIN-32-0015, dated February 10, 2011 (for Model 190-100 ECJ airplanes). Doing the actions in this paragraph terminates the action for the requirements specified in paragraphs (g), (h), and (i) of this AD.

**(k) Other FAA AD Provisions**

The following provisions also apply to this AD:

**(1) Alternative Methods of Compliance (AMOCs):** The Manager, International Branch, ANM-116, FAA, has the authority to approve AMOCs for this AD, if requested

using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the International Branch, send it to ATTN: Cindy Ashforth, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue SW., Renton, Washington 98057-3356; telephone (425) 227-2768; fax (425) 227-1149. Information may be e-mailed to: [9-ANM-116-AMOC-REQUESTS@faa.gov](mailto:9-ANM-116-AMOC-REQUESTS@faa.gov). Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office. The AMOC approval letter must specifically reference this AD.

**(2) Airworthy Product:** For any requirement in this AD to obtain corrective actions from a manufacturer or other source, use these actions if they are FAA-approved. Corrective actions are considered FAA-approved if they are approved by the State of Design Authority (or their delegated agent). You are required to assure the product is airworthy before it is returned to service.

**(l) Related Information**

Refer to MCAI Brazilian Airworthiness Directive 2011-02-01, dated February 12, 2011, and the service information in paragraph (l)(1) through (l)(4) of this AD; for related information.

- (1) EMBRAER Service Bulletin 190-32-0036, dated October 4, 2010.
- (2) EMBRAER Service Bulletin 190-32-0037, dated October 6, 2010.
- (3) EMBRAER Service Bulletin 190LIN-32-0014, dated February 10, 2011.

(4) EMBRAER Service Bulletin 190LIN-32-0015, dated February 10, 2011.

**(m) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the following service information under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use the following service information to do the actions required by this AD, unless the AD specifies otherwise.

(i) EMBRAER Service Bulletin 190-32-0036, dated October 4, 2010.

(ii) EMBRAER Service Bulletin 190-32-0037, dated October 6, 2010.

(iii) EMBRAER Service Bulletin 190LIN-32-0014, dated February 10, 2011.

(iv) EMBRAER Service Bulletin 190LIN-32-0015, dated February 10, 2011.

(3) For service information identified in this AD, contact Embraer S.A., Technical Publications Section (PC 060), Av. Brigadeiro Faria Lima, 2170 - Putim - 12227-901 São Jose dos Campos - SP – BRASIL; telephone +55 12 3927-5852 or +55 12 3309-0732; fax +55 12 3927-7546; e-mail [distrib@embraer.com.br](mailto:distrib@embraer.com.br); Internet <http://www.flyembraer.com>.

(4) You may review copies of the service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

(5) You may also review copies of the service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at an NARA facility, call 202-741-6030, or go to [http://www.archives.gov/federal\\_register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).  
Issued in Renton, Washington, on July 13, 2012.

Michael Kaszycki,  
Acting Manager,  
Transport Airplane Directorate,  
Aircraft Certification Service.

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